

CLAIMS

1. (Previously Presented) An apparatus for adjusting fan speed, comprising:
 - a fan;
 - an angular speed sensor, wherein the angular speed sensor measures at least one angular speed of the fan;
 - an energy unit, wherein the energy unit provides energy output to the fan;
 - a feedback unit, wherein the feedback unit:
 - at least compares the at least one angular speed to a set angular speed level; and
 - at least instructs the energy unit to adjust the energy output to the fan to at least substantially provide the set angular speed level; and
 - a processing unit, wherein the processing unit:
 - at least evaluates a comparison of the energy output to the fan with the angular speed of the fan at a first time and a second time; and
 - at least compares the comparison at the first time with the comparison at the second time to determine fan failure or fan wear.
2. (Original) The apparatus of Claim 1, wherein the angular speed sensor further comprises a tachometer.
3. (Original) The apparatus of Claim 1, wherein the angular speed sensor further comprises a flow meter.
4. (Original) The apparatus of Claim 1, wherein the fan further comprises:
 - a plurality of fan blades; and
 - an electric motor at least coupled to the plurality of fan blades.
5. (Original) The apparatus of Claim 4, wherein the energy unit further comprises an adjustable electrical power supply.

6. (Original) The apparatus of Claim 1, wherein the fan further comprises a plurality of fan blades.

7. (Original) The apparatus of Claim 6, wherein the energy unit further comprises:
a mechanical engine at least coupled to the plurality of fan blades; and
an engine control unit, wherein the engine control unit at least controls mechanical energy output of the mechanical engine.

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Previously Presented) An apparatus for determining fan failure or fan wear, comprising:

an energy unit, wherein the energy unit provides energy output to a fan;
a measurement unit, wherein the measurement unit at least measures the energy output to the fan;
an angular speed sensor, wherein the angular speed sensor measures an angular speed of the fan;
a processing unit, wherein the processing unit at least:

evaluates a comparison of the energy output to the fan with the angular speed of the fan at a first time and a second time; and

compares the comparison at the first time with the comparison at the second time to determine fan failure or fan wear.

15. (Original) The apparatus of Claim 14, wherein the angular speed sensor further comprises a tachometer.

16. (Original) The apparatus of Claim 14, wherein the angular speed sensor further comprises a flow meter.

17. (Original) The apparatus of Claim 14, wherein the fan further comprises:
a plurality of fan blades; and
an electric motor at least coupled to the plurality of fan blades.

18. (Original) The apparatus of Claim 17, wherein the energy unit further comprises an adjustable electrical power supply.

19. (Original) The apparatus of Claim 14, wherein the energy unit further comprises a mechanical engine at least coupled to the fan.

20. (Original) The apparatus of Claim 14, wherein the processing unit comprises at least being configured to use historical data of the energy output to the fan with the at least one angular speed of the fan to determine if energy consumption is increasing.

21. (Currently Amended) An apparatus for predicting fan failure or fan wear, comprising a processing unit, wherein the processing unit at least compares energy output to the fan with angular speed of the fan over time to at least determine fan failure or fan wear and at least uses

historical data of the energy output to the fan with the angular speed of the fan to determine if energy consumption is increasing, and wherein the processing unit outputs a result of the determination.

22. (Cancelled)

23. (Previously Presented) An apparatus for adjusting fan speed, comprising:
a fan;
an angular speed sensor, wherein the angular speed sensor measures at least one angular speed of the fan;

an energy unit, wherein the energy unit provides energy output to the fan;

a feedback unit, wherein the feedback unit:

at least compares the at least one angular speed to a set angular speed level; and

at least instructs the energy unit to adjust the energy output to the fan to at least provide the set angular speed level; and

a processing unit, wherein the processing unit at least:

evaluates a comparison of the energy output to the fan with the angular speed of the fan at a first time and a second time; and

compares the comparison at the first time with the comparison at the second time to predict fan failure or fan wear.

24. (Original) The apparatus of Claim 23, wherein the angular speed sensor further comprises a tachometer.

25. (Original) The apparatus of Claim 23, wherein the angular speed sensor further comprises an flow meter.

26. (Original) The apparatus of Claim 23, wherein the fan further comprises:

a plurality of fan blades; and
an electric motor at least coupled to the plurality of fan blades.

27. (Original) The apparatus of Claim 26, wherein the energy unit further comprises an adjustable electrical power supply.

28. (Original) The apparatus of Claim 23, wherein the fan further comprises a plurality of fan blades.

29. (Original) The apparatus of Claim 28, wherein the energy unit further comprises:
a mechanical engine at least coupled to the plurality of fan blades; and
an engine control unit, wherein the engine control unit at least controls mechanical energy output of the mechanical engine.

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Currently Amended) A method for determining fan failure or fan wear, comprising:
measuring an angular speed of a fan at a first time;
measuring an energy output to the fan at the first time;
comparing the angular speed at the first time to the energy output at the first time;
measuring an angular speed of the fan at a second time;
measuring an energy output to the fan at the second time;

comparing the angular speed at the second time to the energy output at the second time;
[[and]]

determining if there is an impending fan failure based upon the comparison at the first time
and the comparison at the second time; and

outputting a result of the determination.

35. (Original) The method of Claim 34, wherein the step of determining if there is an
impending fan failure further comprises:

storing the angular speed of the fan versus the energy output to the fan;

comparing the angular speed of the fan and the energy output to the fan; and

determining if the energy output to the fan is at least increasing relative to the angular speed
of the fan.

36. (Original) The method of Claim 34, wherein the step of determining if there is an
impending fan failure further comprises:

comparing the angular speed of the fan and the energy output to the fan to a predetermined
consumption; and

determining if the energy output to the fan is at least greater than the predetermined
consumption.

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Currently Amended) A computer program product for determining fan failure, computer program product having a medium with a computer program embodied thereon, the computer program comprising:

computer code for measuring an angular speed of a fan at a first time;

computer code for measuring an energy output to the fan at the first time;

computer code for comparing the angular speed at the first time to the energy output at the first time;

computer code for measuring an angular speed of the fan at a second time;

computer code for measuring an energy output to the fan at the second time;

computer code for comparing the angular speed at the second time to the energy output at the second time; [[and]]

computer code for determining if there is an impending fan failure based upon the comparison at the first time and the comparison at the second time; and

computer code for outputting a result of the determination.

42. (Original) The computer program product of Claim 41, wherein the step of determining if there is an impending fan failure further comprises:

computer code for storing the angular speed of the fan versus the energy output to the fan;

computer code for comparing the angular speed of the fan and the energy output to the fan; and

computer code for determining if the energy output to the fan is at least increasing relative to the angular speed of the fan.

43. (Original) The computer program product of Claim 41, wherein the computer code for determining if there is an impending fan failure further comprises:

computer code for comparing the angular speed of the fan and the energy output to the fan to a predetermined consumption; and

computer code for determining if the energy output to the fan is at least greater than the predetermined consumption.